

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: KHUDYAKOV, YURI E.
FIELDS, HOWARD A.

(ii) TITLE OF INVENTION: MOSAIC PROTEIN AND RESTRICTION
ENDONUCLEASE ASSISTED LIGATION METHOD FOR MAKING
THE SAME

(iii) NUMBER OF SEQUENCES: 55

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: JONES & ASKEW, LLP
(B) STREET: 191 Peachtree Street, N.W., 37th Floor
(C) CITY: Atlanta
(D) STATE: GA
(E) COUNTRY: USA
(F) ZIP: 30303-1769

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US
(B) FILING DATE:
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: WARREN, WILLIAM L.
(B) REGISTRATION NUMBER: 36,714
(C) REFERENCE/DOCKET NUMBER: 03063-0380

(ix) TELECOMMUNICATION INFORMATION:

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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 55 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005270-94T6460
Sub
BS

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCAAACGTA ACACCATTTCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

CCCCGGATCC TATTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGAAT
69

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 54 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005210" 946460
Sub
BS

- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

CCCCGAATTC AACCGAAACC GCAACGTCAG ACCAAACGTA ACACCAACCG TCGT
54

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 70 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTAA
CGTCCTGCGG 60

ACGACGGTTG
70

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 51 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO

005270" 94T6460

Sub
BS

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCAAACGTA ACACCTACCG T
51

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 73 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGGTAG GTG

73

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 55 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005270" 9476460

Sub
B5

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

CCCCGAATTC AACCGAAACC GCAACGTAAA CCGAACCGTA ACACCAACCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 69 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

CCCCGGATCC TATTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGGTT
69

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 63 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005210" 94776460

Sub
B5

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

CCCCGAATTC AACCGAAACC GCAACGTCAG CCGAAACGTA ACACCCCGCG
TCGTCCGCAG 60

GAC
63

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 60 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 55 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005270-94T6460

Sub
BS

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCAAACGTA ACGCTCACCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGGTG
69

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 55 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005210-9476460

Sub
BS

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

CCCCGAATTC AACCGAAACC GCAACGTAAA AACCAGCGTA ACACCAACCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGGTT
69

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 55 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005270-9476460

Sub
p5

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCAAACGTA ACACCATTTCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CCCCGGATCC TATTTTCGGAA CGTAGATAAC ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGAAT
69

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 56 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005210" 94T6460

Sub
B5

- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCGAACGTA ACACCAACCG TCGTCC
56

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 65 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

CCCCGGATCC TATTTCGGAC CAACGATCTG ACCACCACCA GAGAAACGAA
CGTCCGGACG 60

ACGGT
65

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 54 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO

005210" 94T6460

Sub
B5

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

CCCCGAATTC AACCGAAACC GAAACGTCAG ACCAAACGTA ACACCCTGCG TCGT
54

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 73 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCAGCC GGGAATTTAA
CGTTTTTCGG 60

ACGACGACGC AGG
73

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 55 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

005270"94TT6460

Sub
BS

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

CCCCGAATTC AACCGAAACC GCAACGTAAA ACCAAACGTA AAGCTCACCG TCGTC
55

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 69 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

CCCCGGATCC TATTTTCGGAC CAACGATCTG ACCACCACCC GGGAATTTAA
CGTCCTGCGG 60

ACGACGGTG
69

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: not relevant

(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

005270" 94TT6460

Sub
BS

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Ile	Arg	Arg
Pro Gln													
1			5					10					15
Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly		
			20					25					

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: not relevant
 (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Pro	Lys	Pro	Gln	Arg	Gln	Thr	Lys	Arg	Asn	Thr	Asn	Arg	Arg
Pro Gln													
1			5					10					15
Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly		
			20					25					

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: not relevant
 (D) TOPOLOGY: not relevant

005210" 94T6460

Sub
B5

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Tyr Arg Arg
Pro Gln
1 5 10 15
Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: not relevant

(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Pro Lys Pro Gln Arg Lys Pro Asn Arg Asn Thr Asn Arg Arg
Pro Gln
1 5 10 15
Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

005270" 94776460

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

- (ii) MOLECULE TYPE: protein
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Pro Lys Pro Gln Arg Gln Pro Lys Arg Asn Thr Pro Arg Arg
 Pro Gln 1 5 10 15
 Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: not relevant
 - (D) TOPOLOGY: not relevant

- (ii) MOLECULE TYPE: protein
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Ala His Arg Arg
 Pro Gln 1 5 10 15
 Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly

005210-01161650

20

25

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Pro Lys Pro Gln Lys Arg Asn Gln Arg Asn Thr Asn Arg Arg
 Pro Gln
 1 5 10 15
 Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

 005219" 9115150
 Sub
 BS

Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Ile Arg Arg
 Pro Gln 1 5 10 15
 Asp Val Lys Phe Pro Gly Gly Gly Val Ile Tyr Val
 20 25

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Pro Lys Pro Gln Arg Lys Thr Glu Arg Asn Thr Asn Arg Arg
 Pro Gln 1 5 10 15
 Asp Val Arg Phe Ser Gly Gly Gly Gln Ile Val Gly
 20 25

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

005270-9477650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Pro Lys Pro Lys Arg Gln Thr Lys Arg Asn Thr Leu Arg Arg
 Pro Lys 1 5 10 15
 Asn Val Lys Phe Pro Ala Gly Gly Gln Ile Val Gly
 20 25

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Pro Lys Pro Gln Arg Lys Thr Lys Arg Lys Ala His Arg Arg
 Pro Gln 1 5 10 15
 Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 82 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

005270-012500

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

CCCCGAATTC AAGCCGCCCA CATAACATAC CTAGAACAAG GAATGCATCT
CGCAGAACAA 60

TTCAAACAAA AGGCACTTCG TC
82

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 84 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

CCCCGGATCC TAACTAGCCT CTTCCATCTC ATCAAACCTCC TGATACAAAA
CCTCCCTATC 60

CGGGATAACA GCCGGACGAA GTGC
84

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 85 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

005210-01500

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

CCCCGAATTC AAGCTAGTCA CTTACCGTAT ATCGAGCAGG GAATGCAGTT
AGCTGAACAG 60

TTTAAACAGA AGGCTCTGGC TTTTG
85

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 81 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

CCCCGGATCC TAAGGCCGAG CGTCAGACTC AGGAACATAA TGAGTAGGAG
AAACATGATT 60

ACCCCGAGAA GCAAAAGCCA G
81

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 81 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

005270-012500

- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

CCCCGAATTC AACGGCCTGC GATAATACCG GATAGGGAGG TTCTTCATAG
GGAGTTTGAC 60

GAGATGGAGG AGGCTTTTGC G
81

(2) INFORMATION FOR SEQ ID NO:39:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 79 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

CCCCGGATCC TACTGCGAAG CATCAGACTC AGGAACATAA TGAGCCGGAC
TAACATGATT 60

CCCACGAGAC GCAAAAGCC
79

(2) INFORMATION FOR SEQ ID NO:40:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 83 base pairs

005270-94160

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: NO
 (v) FRAGMENT TYPE: internal
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

CCCCGAATTC AATCGCAGGC GCGCCTTAT ATTGAGCAGG CTCAGGTTAT
 TGCTCATCAG 60

TTTAAGGAGA AGGTTCTTGC TTT
 83

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 83 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: NO
 (v) FRAGMENT TYPE: internal
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

CCCCGGATCC TACGGCTTCG CGTCCGACTC AGGAACATAA TGAGTCGGAG
 AATCATGATT 60

ACCACGAGAA GCAAAAGCAA GAA
 83

(2) INFORMATION FOR SEQ ID NO:42:

005210-041550

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 79 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

CCCCGAATTC AAAAGCCGGC GATAATCCT GACCGTGAGG TTCTGTATCG
TGAGTTTGAT 60

GAGATGGAGG AGTCACAGC
79

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

CCCCGGATCC TAAACGCCA GAGCCTTCTG CTTAAACTGC TCAGCAAGCA
TCATACCCTG 60

005210-9474460

CTCAATGTAC GGAAGATGCT GTGACTC
87

(2) INFORMATION FOR SEQ ID NO:44:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 76 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

CCCCGAATTC AAGCGTTTGC TTCTCGTGCT AATCATGTTG CTCCGACTCA
TTATGTTACG 60

GAGTCAGATG CTAAGC
76

(2) INFORMATION FOR SEQ ID NO:45:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 84 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

005210 "012500"

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

CCCCGGATCC TAGAAAGCCA GAACCTTCTC CTTAAACTGA CCAGCAATAG
CACGCGTCTC 60

GTCCATATAC GGCAGAGAAG CAGAAG
86

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

CCCCGAATTC AAGCTTTCGC TAGTCGTGGG AATCATGTGT CGCCGCGTCA
TTATGTGCCT 60

GAGTCTGAGC CTCAGGTTGT
80

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 80 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

005270-944650

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

CCCCGGATCC TAAGAAGCCT CCTCCATCTC ATCAAAAGCC TCATACAGTA
TCTCCTTATC 60

CGGCGTAACA ACAACCTGAG
80

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 52 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

CCCCGAATTC AAGCTTCTAA GGCCGCGCTG ATTGAGGAGG GTCAGCGTAT GG
52

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 48 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

005210-9412160

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

CCCCGGATCC TACTGGATCT TAGACTTCAG CATCTCAGCC ATACGCTG
48

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 352 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: not relevant
- (D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Ala Ala His Ile Pro Tyr Leu Glu Gln Gly Met His Leu Ala
Glu Gln 1 5 10 15
Phe Lys Gln Lys Ala Leu Arg Pro Ala Val Ile Pro Asp Arg
Glu Val 20 25 30
Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu Ala Ser His Leu
Pro Tyr 35 40 45
Ile Glu Gln Gly Met Gln Leu Ala Glu Gln Phe Lys Gln Lys
Ala Leu 50 55 60
Ala Phe Ala Ser Arg Gln Asn His Val Ser Pro Thr His Tyr
Val Pro 65 70 75
80
Glu Ser Asp Ala Arg Pro Ala Ile Ile Pro Asp Arg Glu Val
Leu His

005210-012500

sub
B5

85

90

95

Arg Glu Phe Asp Glu Met Glu Glu Ala Phe Ala Ser Arg Gly
Asn His 100 105 110

Val Ser Pro Ala His Tyr Val Pro Glu Ser Asp Ala Ser Gln
Ala Ala 115 120 125

Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln Phe Lys
Glu Lys 130 135 140

Val Leu Ala Phe Ala Ser Arg Gly Asn His Asp Ser Pro Thr
His Tyr 145 150 155
160

Val Pro Glu Ser Asp Ala Lys Pro Ala Ile Ile Pro Asp Arg
Glu Val 165 170
175

Leu Tyr Arg Glu Phe Asp Glu Met Glu Glu Ser Gln His Leu
Pro Tyr 180 185 190

Ile Glu Gln Gly Met Met Leu Ala Glu Gln Phe Lys Gln Lys
Ala Leu 195 200 205

Ala Phe Ala Ser Arg Gly Asn His Val Ala Pro Thr His Tyr
Val Thr 210 215 220

Glu Ser Asp Ala Lys Pro Ala Leu Val Pro Asp Lys Glu Val
Leu Tyr 225 230 235
240

Gln Gln Tyr Asp Glu Met Glu Glu Ala Phe Ala Ser Arg Gly
Asn His 245 250
255

Val Ala Pro Thr His Tyr Val Val Glu Ser Asp Ala Ser Ala
Ser Leu 260 265 270

Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln Phe Lys
Glu Lys 275 280 285

00521500

Val Leu Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Arg
 His Tyr 290 295 300

Val Pro Glu Ser Glu Pro Gln Val Val Val Thr Pro Asp Lys
 Glu Ile 305 310 315
 320

Leu Tyr Glu Ala Phe Asp Glu Met Glu Glu Ala Ser Lys Ala
 Ala Leu 325 330
 335

Ile Glu Glu Gly Gln Arg Met Ala Glu Met Leu Lys Ser Lys
 Ile Gln 340 345 350

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

CTGGTTCCGC GTGGATCCCC AGGAATTCCC GGGTCGACTC GAGCGGCCGC ATCGTGA
 57

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

005270-012500

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

TCGCAGCGAA TTCTCGAGGA TCCATCC
27

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 56 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Hepatitis virus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

CTGGTTCCGC GTGGATCGCA GCGAATTCTC GAGGATCCAT CCCGGCCGCA TCGTGA
56

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